241 433 Oil seed bearing crops are also raised but in small quantities compared with the output from other parts of China. One reason for this is the lack of markets with a resultant slight incentive to expand and promote the planting of oil seed bearing crops. The following figures are in 1,000 metric tons and 1,000 hectares and are an average for the years 1931-1939. (T. H. Shen. pp. 248-249.)

Province	Soybean	Peanuts	Sesame	Cottonseed	Rapeseed
Ninghsia	2	-	negligible	-	1
Chinghai	-	-	-	-	21
Kansu	38	negligible	negligible	5	25
Shensi	46	12	17	86	51

Acreage in 1,000 hectares (1 hectare = 2.471 acres)

Province	Soybean	Peanuts	Sesame	Cottonseed	Rapeseed
Ninghsia	2	-	negligible	-	31
Chinghai	2	-	-	-	34
Kansu	38	negligible	1	13	54
Shensi	56	9	38	267	141

Besides the geographical and climatic limitations to farming, insects, diseases, and rodents seriously limit crop production. The black smut of wheat, barley, millet, proso-millet, and kaoliang is reported to cause losses of from twenty to eighty per cent of the crops. Yellow rust of wheat causes a loss of twenty per cent. Leaf cur of tobacco at Lanchow in Kansu decreases the yield and affects the quality of the crop. A kind of marmot, locally called the "yellow rat" was a great menace during the drought years 1928-1931. [136 731]

241 731 The region is frequently subject to earthquakes, droughts, and famines which make farming extremely precarious. Calamities destroyed twenty per cent or more of the crop on the average annually during the period 1904-1929 and in 1930 a great famine swept through the region. Yet according to the population statistics and the total land area, there is no problem of population pressure, at least relatively. In addition, there is the possibility of increasing returns from the land under cultivation if existent farming techniques were improved and innovations introduced, i.e., use of fertilizer, better irrigation facilities, better seeds, etc.

241 489 But the biggest factors preventing increased returns in the Northwest have been the absence of transport facilities and financial assistance; e.g., the inability of the Nationalist Government to provide extensive loans at low interest rates. J. L. Buck points out that the absence of transport and communications to link the Northwest with other parts of China has accounted for the very small quantities of livestock and agricultural produce which have been exported and has hindered the development of local markets. With the growth of transportation, communications, better market facilities, etc., the possibility of increasing returns to agri-

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vegetable wax, cotton, hemp, hides, bristles, edible wood fungus, tobacco, indigo, paper, cane sugar, straw braid, etc., of which the most important is the wood oil[1], crushed out of the seeds of an apple-like fruit ripe in the autumn. Coal, iron, copper, gold, silver, antimony, and asbestos, and perhaps other minerals, exist in the neighbourhood. As a result the basin of the upper Han is one of the most prosperous regions in the whole of China and the population one of the wealthiest. Rice is usually cheaper even than in Szechuan. But in spite of its prosperity the region is isolated and backward as regards foreign improvements, and will probably undergo a very rapid development when tapped by a railway. It is one of the anomalies of modern China that this rich well-populated region and also the productive wheat and cotton-growing prairies of the Wei River valley should still be without railway communication, though neither are really difficult to get at.

The population of Hsingan is somewhat rough, not over friendly to foreigners, and strongly tainted with secret society influence, and compares unfavourably with that of Hanchung and the towns further up the valley, which have been populated by the more kindly Szechuanese. There is a considerable Mahomedan community of immigrants from Kansu, who as elsewhere keep very much to themselves.

The Han River is of course the main artery of communication. To Hankow downstream takes one to three weeks according to the state of the water, and the return journey upstream one to two months. Steam navigation on the upper Han seems to be out of the question owing to the shallows, shifting channels, and rapids. The worst rapids, some of which are very dangerous, lie between Yang Hsien (at the lower end of the Hanchung plain) and Hsingan.

There is good pheasant, partridge, and wild-fowl shooting to be had round Hsingan, and immediately to the south lies a very wild and sparsely-inhabited mountain region on the borders of Shensi, Hupei, and Szechuan, which is said to harbour all kinds of big game, such as deer, goat, pig, bear, leopard, and even the tiger.

[1] Wood oil is nowadays one of the most important articles of the China export trade; the trees flourish on bare stony mountain sides incapable of other cultivation, and are worth studying from the point of view of afforestation generally.

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for about 15 li to reach the pass in the big range. The ascent is comparatively easy except for the last few hundred feet, the valley being flat and open and apparently of glacier origin in contrast to the deep narrow gorges usual in the Ch'inling Shan. A little snow and ice were still lying in the stream bed in the middle of May. From the summit of the pass (9000 feet) there is a fine view to the north towards T'aipai Shan (12,000 feet), which appears as a rocky ridge sprinkled with snow, with a lower range in the immediate foreground over which the path leads to Fop'ing. All around are forest-clad ranges, uninhabited, and abounding in big game, deer, bear, pig, leopard, goral, and takin; but owing to the nature of the country their pursuit would involve great difficulties and hardships. This is near the heart of the Ch'inling Shan, a wild unexplored region, whence the ranges and streams ramify east and south-east on one side, and west and south-west on the other. The pass is called the Hsinglung Ling, and is crowned with an old ruined temple and gateway. There are additional signs that this trail, now unused except by a few isolated coolies carrying salt into the Han valley, smugglers, and others with good reasons for avoiding the main road, was once a much more important route. It is of course the most direct road from Hsian to Hanchung.

From the pass there is an easy descent through another flat open valley, where we saw some silver pheasants (or perhaps they should be referred to as blood pheasants, a species of *Ithagenes*), into the valley of a stream flowing west, where there is some cultivation, as usual mostly potatoes, and some huts, called Huangts'ao P'ing; these valleys are less thickly wooded than those on the southern side of the pass. Here the trail leaves the stream at once and strikes up the opposite slope to the north to reach another pass after an hour's easy climb. This range is the last to be crossed before reaching Fop'ing and is a few hundred feet lower than the Hsinglung Ling. From the pass there is a steep descent by a very rough track through a narrow gorge until one debouches after about 25 li into the broad cultivated valley of the Fop'ing River, up which the road runs eastwards through corn fields swarming with pheasants for ten li to Fop'ing T'ing.

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361 Fop'ing, formerly a T'ing and now a third class Hsien, is a tiny place, a mere walled hamlet, containing only twenty or thirty families, and is probably about the smallest and most miserable of all the Hsien cities in China Proper. It lies in a cultivated valley, on the headwaters of a stream which apparently flows west and then south to join the Han near Ch'engku. This valley, over 6000 feet above sea level, is a quarter to half a mile wide, and surrounded on all sides by [241] lofty mountains; it produces wheat, barley, maize, beans, peas, and potatoes, the latter being a most important crop [242] in these mountains and in many parts the staple food of the people. The wheat was just showing above ground in the middle of May when it is ripe for harvest in the Hanchung plain. This valley appears to be the best and most populous part of the district which is entirely covered by high ranges, including T'aipai Shan in the N.W. corner. The post of magistrate is naturally not sought after. The Chinese consider Fop'ing a "dreadfully bitter" place (*k'u ti hen*), since there is no rice nor pork, nor other desirable food supplies; but to the foreigner the abundance of game, bracing healthy climate, and magnificent mountain scenery combine to make it a delightful spot. When the railway reaches Hanchung a month in Fop'ing in the autumn with dog and gun will form a pleasant way of spending a holiday.

136 We stayed a couple of days at Fop'ing, during which it rained in the valley and snowed on T'aipai and the higher ranges. The cultivated fields round the city and the brush-covered hills to the south abound in pheasants, and I shot a good many cocks, which in spite of the season were excellent eating and a welcome addition to our food supplies. I have shot a great many cock pheasants in the highlands of Shensi and Kansu in the summer for food, as the parts where supplies are scarce and pheasants abundant always seem to coincide. The game-exporting companies have not yet extended their activities to these parts, which provide probably the best wild pheasant shooting in the world. The pheasants usually met with are the usual Mongolian ring-necked species, with the white ring growing less and less as one goes west till it dies out altogether in the mountains of the Kokonor border. These birds literally swarm in the corn fields in many of the cultivated valleys in the mountains

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of the North West and must consume a great deal of grain. Strangely enough the Chinese peasants, often poor to the verge of starvation, seldom touch them,[1] partly because of the cost of powder and shot, and partly perhaps because of the curious prejudice the Chinese cultivator has to eating anything wild, for fear lest it should make him "wild in the heart." The ordinary Chinese appear much to prefer a skinny old chicken to a nice plump pheasant because the former is not wild. While we were routing out pheasants on these hills we put up four deer, apparently a large kind of roe, which showed very little alarm and kept on re-appearing at intervals for the rest of the afternoon.

The T'ing, usually translated "sub-prefecture" and now abolished, appears formerly to have been always the centre of a sort of military district located in mountainous country for the purpose of holding aboriginal tribesmen of some kind in check. Thus one will find many T'ing on the western confines of Yunnan, Szechuan, and Kansu facing the Tibetans; in the Miaotzu country of Kueichou and adjacent provinces; on the borders of Lololand in Szechuan; on the Burma-Yunnan frontier; and in Northern Shensi on the Mongolian border; but not in provinces like Anhui, Kiangsu, Shantung, etc., which have never contained a non-Chinese population. There are quite a number of T'ing in the Nan Shan of Shensi. But every vestige of an aboriginal non-Chinese population seems to have disappeared, if it ever existed. I have a vague recollection that some European scholar has evolved a theory that the non-Chinese tribes now living in Southern China originated in the mountains of Southern Shensi. Incidentally it may be noted that the former T'ing are usually marked in foreign maps of China as more important places than the Hsien. But with the exception of a few larger places such as Tachienlu and T'engyueh, nine out of ten of the T'ing are miserable little walled villages in the mountains, nowadays ranking as the poorest of third class Hsien.

Leaving Fop'ing the track climbs up the range immediately to the north by zigzags to reach the pass about a thousand feet above the valley, whence there is a fine view over a wilderness of mountains all around. To the N. and N.W. lies T'aipai Shan, a bare rocky ridge still carrying a good deal of snow in May. This pass (about 7000 feet) is

[1] [pheasants – ANALYST]

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From Fenghsiang to Yao Chou by this route is a distance of about 510 li, and thence to Yenan another 530 li.

Leaving Fenghsiang Fu by the East Gate the trail soon turns off the main road to the N.E. and runs across the plain for 20 li to the foot of the hills. Crossing a spur a few hundred feet high the path then descends into the ravine of a stream which is followed up for two hours' march to the hamlet of K'angchia Ho. The surrounding mountains are all of loess terraced for the cultivation of wheat and maize, with the scattered inhabitants living mostly in caves. In this neighbourhood we came across some chikor of exceptionally large size (the handsome red-legged partridge of North China), the only occasion on which I have seen them in the loess. These birds are called *Shih Chi* (stone fowl) in the mountains of Northern Chihli, where they are common, frequenting bare stony slopes. They are found in large coveys, which seldom fail to make their presence known by their characteristic call; but they are most difficult to shoot, as they are inveterate runners, always up hill, and, being very strong, carry a great deal of shot; the only way to get them is to descend on them from above. They are excellent eating, but not so good as the little brown partridge with a black patch on the breast, also fairly common in the mountains of the North. Throughout our journeys in Shensi and Kansu, however, we saw very few partridges compared to pheasants.

From K'angchia Ho the trail runs up a branch of the stream to the N.E. for a few li and then strikes up the hill side, and following a ridge between two ravines ascends gradually to reach a pass (4300 feet), the boundary between Fenghsiang and Linyu districts. There is much uncultivated land on these mountains, the grass-grown terraces gradually becoming obliterated; this is a common sight throughout Northern Shensi and Kansu, and together with the many ruined villages points to a decrease in population, supposed to be due to the ravages of the great Mahomedan rebellion of fifty years ago, but perhaps also due to a gradual desiccation of this region. All around are loess ridges and ravines in bewildering confusion; but there appears to be a sort of watershed trending S.E., a range which is known further east as the Ch'i Shan. From the pass there is no immediate

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about 4700 feet. From the pass there is no immediate descent, the track following along a winding ridge in the grass and brush-covered hills for 25 li, and then descending a few hundred feet to reach Yichün, a dilapidated little city, built on the side of the ridge, the centre of a very poor third class district.

The range of mountains crossed on this day's march forms the watershed between the Lo and Wei rivers, the two principal streams draining Northern Shensi, and rises well above the loess covering. Perhaps the soil of no region in the world has been worked by man to the same extent as the loess of Central Shensi, where the Chinese have been scratching, sowing, and reaping uninterruptedly for some 4000 years or more, and the landscape of those plains appears tired and worn out. It is therefore a relief to get out of the loess, with its alternate dust and mud, glaring heat, insufficient and often brackish water, and treeless and monotonous scenery, into these mountains with their clear streams, grassy downs, and brush-covered slopes, haunted by innumerable deer and pheasants. In all our travels we found few spots more teeming with game than the hill sides in the neighbourhood of Yichün, and being now in a country where supplies were practically nil, we bagged quantities of cock pheasants, in pursuit of which it was seldom necessary to go more than a hundred yards from the road. We saw plenty of deer, apparently roe, too, but as we could get as many pheasants as we wanted, we did not trouble to go after them.

This range also marks the dividing line at present between the comparatively peaceful regions of Central Shensi and the brigand infested north. Yichün had been raided but recently, and was generally speaking in a most dilapidated condition from this and previous raids. When leaving the next morning we passed a crowd of the usual emaciated dogs outside the North Gate feasting on the remains of some decapitated brigands, an unpleasant sight at six o'clock in the morning, but one which gave great pleasure to most of the party. For a dead brigand cannot but be a pleasant sight to a peaceful Chinese, and my companions kept on repeating to themselves with real satisfaction *kou ch'ih t'u fei* (dogs eating brigands), as being an entirely

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[361] debouches into Szechuan and where another road emerges from Kansu *via* P'ik'ou. Being a mountainous border district it is full of brigands, who do not, however, seem so formidable or so destructive to trade as their colleagues in Northern Shensi; at any rate much traffic continues on the big road.

We were now at the end of July, and as we emerged from the higher mountains of Shensi into Szechuan the [136] heat became daily more terrific. Mosquitoes too, which are not noticeable in Kansu at all owing to the elevation, and which only begin to be bad in Shensi towards the autumn, became daily more voracious.

From Kuangyuan to Chaohua is a short march of 55 li. down the left bank of the Chialing Chiang, which here winds a good deal between more open mountain slopes. The [491] river is crossed by a ferry to reach Chaohua, a small third class district city, built on a point of land at the confluence of the Chialing Chiang and a large tributary called the Pai Ho from Kansu. These rivers have cut deep narrow valleys in the precipitous mountains, which seem to run in all directions.

Leaving Chaohua the road climbs to the top of a ridge between the two rivers and continues along the summit in a westerly direction for 40 li with finally a descent to the village of Tashumu, whence it ascends another ridge leading S.W. The trail is here a good paved path, ascending and descending where necessary by flights of stone steps, and the march along the summits of the ridges affords a series of fine views over the surrounding mountains. Seventy li from Chaohua the path drops steeply into the gorge of a stream flowing north, up which it continues for another hour, passing through a gate in a remarkable defile under steep precipices of conglomerate rock, to reach the large [361] village of Chienmen Kuan, the seat of a deputy magistrate under Chien Chou.

On the next day's march the path follows up the valley for a short distance, and then climbs again on to a ridge which leads in a south-westerly direction. The paved path is much of the way bordered by venerable trees hundreds of years old, whose welcome shade accompanies one at intervals right through these mountains for several days'

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valley, at first through cultivated fields and then through a densely wooded gorge. This is a difficult march in the summer, as the trail constantly crosses and recrosses the stream, which is rapid, obstructed by boulders, and only just fordable. Several of us got a wetting, but we were lucky in keeping the pack-mules on their feet and our bedding dry. The mountains in the neighbourhood are covered with fine forest, but mostly on the slopes facing north only, a peculiarity which may be noticed all along the Kokonor border; I have observed the same thing in the forests of Northern Shansi; whether it is that the sun is too hot on the southern slopes, or that the northern slopes alone receive sufficient moisture, I am unable to say. Four to five hours' march down this gorge, past several small lamaseries, brings one to the junction of this stream with the Tahsia River, a torrent flowing from Labrang to Ho Chou. The Labrang road turns up this valley and runs for a few li through cultivated fields to the small monastery of Shakou Ssu, which lies on the north side of the stream, with a Mahomedan hamlet, Sasuma, opposite, where we passed the night in an inn. There are pine forests all around, and the Tahsia River, though only a mountain torrent, is used for rafting the cut timber down to the Yellow River and Lanchou. The timber is made up into narrow sections, fastened one behind the other, and the jointed raft which results is navigated down the rapids and through the rocks with extraordinary skill by Mahomedan raftmen.

From Heitso to Labrang is a distance of some 120 li, and Sasuma lies about half way, the track running for the rest of the way up the valley of the Tahsia River. For the first 30 li the path is very bad and rocky, the valley being a gorge hemmed in by wooded mountains; there is no more fording to be done, however, as the river is spanned by good cantilever bridges, this being a portion of the Labrang-Ho Chou road, which is much used by the mule trains of Mahomedan merchants. In this neighbourhood we saw some *ma chi*, the large and handsome silver pheasant with red legs (*Crossoptilon auritum*, probably). For the second 30 li the valley opens out and the road becomes a good highway. The first intimation we received of the approach to Labrang were the white and blue tents dotted

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and the background of bare snow-sprinkled mountains, made up a wild and desolate landscape, the scene of uncounted contests between Chinese, Tartars, and Mahomedans in the past.

The trail continues up the valley, which is here a mile or two wide and slopes gently up to grassy downs on either side, for four to five hours' march to an old military post called Chench'iang Yi. Here the river is crossed by a ford, which must be difficult in rainy weather, and the road, leaving the P'ingfan valley, runs due north over easy grassy slopes for 15 li to gain the Wushao Ling (10,000 feet), the divide between the waters which flow east to join the Yellow River and those which flow north into the desert and fail to reach the sea. Immediately to the west some rocky peaks patched with snow rise to a height of 14,000 to 15,000 feet. From the pass the road descends, at first over grassy downs alive with marmots, and then by a steep stony track, to the ruined village of Anyuan P'u in the narrow valley of the Kulang River. The Wushao Ling will prove the principal engineering obstacle to the railway which is projected as an extension of the Lung Hai line along the main road towards Central Asia, and will presumably necessitate a considerable tunnel. Otherwise the construction of this extension will be easy compared to the section from Hsian to Lanchou. Fifteen li down the valley brings one to the village of Lungk'ou P'u. This is a long day's march called 90 li (which means 30 miles in Western Kansu) and the track beyond the pass is bad and rocky.

On the following day a short march of 45 li by a rough road down the valley brought us to the district city of Kulang, a small town three-parts in ruins situated at the point where the stream debouches from the mountains on to the plain. Here we were given a typical instance of Chinese administrative methods. One of our mules having fallen lame, we asked the magistrate to be good enough to procure us another animal, which he said could easily be done. We were accommodated in a small yamen and our mules in an inn, and that evening the head muleteer came round in a great state and said that one of our mules had been seized by the underlings from the magistrate's yamen. Explanations were of course immediately forthcoming and the misunderstanding cleared up. The magistrate had instructed his

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provincial treasury in silver at an old-established rate much below the market price, permitting a considerable profit to be made on the transaction. The productiveness of the land is of course entirely dependent on the irrigation streams from the snows of the Nan Shan, the magistrate informing us that he had been nine months at his post and only seen rain fall on two occasions.

The following day's march of 70 li to the oasis of Shehsia Kou would have been easy enough had we not lost our way. We started at 3 a.m. in order to try and reach the wells of T'ou Ching, 40 li out, before the sun got too hot. The trail led across a waste of sand hills and soon ceased to exist. The desert is devoid of all vegetation and lifeless except for antelope, which were constantly in view; what they find to eat I cannot imagine. After we had been marching for some hours the soldier from Chenfan who was acting as guide announced that he had lost the way. Looking for the wells where we were to have our midday halt was like searching for a needle in a haystack, and the position was unpleasant enough. Altogether we wandered round, steering more or less west, for some seven or eight hours, suffering greatly from thirst, with the sand often over the ponies fetlocks. Our only landmark was an ancient ruined tower, the remains of some old fortification in this region, perhaps a part of the Great Wall. At last one of the soldiers sent out to reconnoitre from a rise descried the tents pitched at the wells in pretty well the opposite direction to that in which we were then trekking, and an hour later men and animals were satisfying their thirst. Another three hours' march across the desert brought us to the oasis of Shehsia Kou, where we were comfortably lodged in the interior of one of the fortified farms so common in this region.

The next stage is another desert march of 80 li to the village of Ningyuan P'u, but there is an oasis, Tung Wan, half-way, the going is better, and we took care not to lose our way. Ningyuan P'u is a walled village at the mouth of an irrigated gorge where the mountains meet the desert plain. From here to Yungch'ang is a distance of 75 li. The trail follows up the irrigated valley for 35 li to the hamlet of Tsungchia Chai, where it turns up a barren stony ravine, crosses a low pass, and descends across an arid sloping

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and the black rectangular tents of nomad Tibetans, the usual hinterland of *Ts'ao Ti* (Grass Lands), which everywhere in the north and west lie behind the border ranges of China. Apart from the nomads and their ponies, yak, and cattle, the only sign of life were the huge vultures, which were extraordinarily abundant. The final ascent to the pass is by easy gradients, and a similar descent of about 10 li brings one to Êpo, a dot of a place lying in a sea of grass.

Êpo (this is the regular romanisation of the Chinese characters, pronounced Obaw) is a small walled village and former fort situated in a shallow valley sloping from east to west, surrounded by grassy downs and backed by rocky snow capped mountains. The elevation is probably between 11,000 and 12,000 feet, and there is no cultivation, the necessary grain being brought up from below. The entire community, composed of a few Mahomedan Chinese, seemed to be engaged in the collection of wool, with occasional purchases of musk and deer horns. The latter (wapiti antlers) when old are quite cheap and are collected and sent down to China for the manufacture of glue; when in velvet they are extremely valuable and are ground up to form the well-known Chinese medicine for revivifying the old. This medicine is said to be very powerful, and I was informed by a member of our party, who here purchased a pair for a friend, that care must be exercised in taking a dose to see that the powder comes equally from both antlers, otherwise there is a grave danger that the patient may be revivified on one side only! Musk may also be profitably purchased at Êpo, and for some days afterwards our caravan was redolent with it. Wherever one may pack a pod of musk it is guaranteed to make its presence widely known. The advantage of buying musk at a place like Êpo, apart from its cheapness, is that one is pretty certain to get the genuine article, adulteration being widely practised in the trade in China.

Êpo appears to lie actually on the Kansu-Kokonor border (though boundaries are vague in those parts), and its position is of some strategic importance as commanding one of the few routes from Kansu and Mongolia up to the Kokonor, north of Hsining. We were met here by some Mahomedan braves sent up from the Hsining and Tatung

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accompanied us that in crossing it we passed again from the Kokonor territory into Kansu.

From the pass the track drops steeply into a rough stony ravine, the stream in which is followed in a south-easterly direction for the remaining 70 li to Yungan Ch'eng. For the first half of the way the track is very bad, lying down the bed of a stream which is apt to rise in wet weather and render the road impassable; further on the going improves, the gorge opening out on to a flat grassy valley, and the last hour's march is over prairie, spoilt for riding, however, by the countless holes of a small rat-like rodent; in places the ground is alive with these little animals, dodging in and out of their holes like miniature marmots. The bed of the stream flowing down from the pass is apparently rich in gold, and Mahomedan gold washers were at work at various points when we passed. They live in tiny tents and appear to pass a very hard life for small returns. The industry is under the patronage of the leading Mahomedan Generals. We followed the washing in several spots and always saw a few grains of gold dust produced; nuggets are, we were told, occasionally found. We had descended this stream almost from its source, so that in this case the gold-bearing rocks from which the gold has been washed cannot be far off. Very large profits can be made in ordinary times by buying this gold on the Kokonor and selling it in Shanghai.

Just before reaching Yungan we passed some Mongol tents, identical in appearance with the felt yurts to be seen in the grass country north of Kalgan, and it seemed strange to come across these people here, whom one associates with summer trips to the north of Peking. The Kokonor territory is the meeting-point of the Tibetan and Mongol races, and here, as elsewhere, the black rectangular tents of the former may be seen almost side by side with the round grey tents of the latter. It appears that the Mongols, who originally occupied the country far to the south, are gradually retreating northwards before the encroachments of the more virile Tibetans. Unlike the Tibetans, who are in these parts all robbers by nature, the Mongols are peaceful and inoffensive herdsmen, who give the Chinese authorities no trouble. They are organized into Banners under their own Princes,

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without a scrap of vegetation. A little gold-washing is carried on in this neighbourhood. There were numerous rapids, over which our rafts rode triumphantly. Navigation, carried out by sweeps at the bow and stern, consists in avoiding the rocks and sand-banks and keeping the raft clear of the cliffs where the river swirls round a corner. Unless engaged in a particularly fierce rapid but little attention is paid to these cliffs, and on several occasions my raft crashed against the perpendicular wall of rock in a way which would have smashed a boat to pieces, but without doing any damage beyond shifting a few telegraph poles. In the bad rapids, however, where the water is heaped up into the centre of the river in a tongue like the big rapids on the Upper Yangtzu, great care is taken, since the pace is so tremendous that the raft could scarcely survive the impact with a large rock. Towards evening we noticed large numbers of goral (or wild goat of some kind) in these gorges, clambering about the precipitous cliffs in tens and twenties; one could have shot any number from the raft, but it would have been impossible to stop and retrieve them.

These gorges last for six or seven hours, until finally a picturesque temple on a bluff overlooking the river marks the exit from the gorge and the approach to Wufang Ssu, a boating village in a small plain on the left bank of the river. Sheep are grazed extensively on the semi-desert hills in the neighbourhood, and wool is collected here and shipped down river for the Tientsin trade.

From Wufang Ssu the river flows east and north-east again. Two hours further on another long gloomy gorge, with many rapids and whirlpools, is entered, the passage through which takes seven to eight hours; coal is exposed in the cliffs in places. At length the mountain walls give way to huge sand-hills and then to an irrigated alluvial plain, and two hours further on Chungwei Hsien is reached. Chungwei, lying inland about five li from the left bank of the river, is quite an important town, the centre of a rich fertile region where the desert is irrigated by canals from the Yellow River, and also a market for the wool trade.

Below Chungwei the Yellow River becomes a broad stream obstructed by sand-banks and shallows, flowing through an immense plain dotted with low hills and irrigated

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stretches. So far our river journey had been a complete success; but now things began to go wrong, and we spent three days making a few miles owing to the rafts constantly running aground, when, owing to their unwieldy weight, it was an extremely difficult matter to move them. The culminating misfortune was a tremendous storm of rain and wind one night, which blew our rafts adrift and scattered them over various sand-banks miles apart in impossible positions. We decided therefore to abandon them, and an appeal to the Chungwei magistrate having produced a couple of small boats, we transhipped our effects, sending the ponies overland to Ninghsia, distant a few days' journey. To be on board a raft stuck on a sand-bank in the middle of the Yellow River for two or three days is a good test of one's patience. I at first passed the time by shooting geese, which here began to appear in some numbers, but had to desist as no one would eat them; the Chinese goose, though a magnificent bird to shoot, is very tough and stringy to eat, and is only palatable if carefully cooked and stuffed. Fortunately the banks were here irrigated and inhabited and one could buy grain and vegetables. Our water supply, as all the way down, was the river; we had no filters, but a pinch of alum in a bucket soon changes the yellow pea-soupy liquid into clear water; another method of eliminating the yellow mud is to scoop a small hole in a pebbly bit of beach, which immediately fills with clear filtered water.

Making a fresh start in our small boats we floated down stream rapidly past several villages for some twelve hours to the walled township of Kuangwu, where the cultivated strips on both banks come to an end, and the large irrigation canal, which commences above Chungwei, rejoins the river. The abrupt cessation of these irrigated lands is due to a range of low mountains through which the Yellow River here breaks its way, and which separate the irrigated plains of Chungwei and Ningan from those of Ninghsia and Chinch'i. The desert everywhere begins where irrigation ceases. The passage through the gorge in these hills below Kuangwu takes about an hour, the exit being marked by temples on either side, and the river emerging on to a vast plain. A couple of hours further down we tied up at a village on the right bank not far from the district city of

2: Teichman G-5 (1919) 1921 AF13 Northwest China AF13

tion comes to an end, and the fertile plain gives way to a sandy waste. Eventually, after some twenty-seven to thirty hours of actual drifting down stream from Chungwei, exclusive of halts, we reached the walled fort of Hung Ch'eng, which is, so to speak, the port of Ninghsia, lying on the right bank at the point where the Great Wall and the main trail from T'aiyuan *via* Suitê to Ninghsia strike the Yellow River. Behind it the land rises in sandy uninhabited downs, the beginning of the Ordos desert. The river is here about three-quarters of a mile wide and is crossed by a ferry. Ninghsia lies 40 li inland on the opposite side.

As our ponies had not yet turned up on their overland journey from Chungwei we found ourselves stranded on the river bank opposite Hung Ch'eng, until the Ninghsia authorities, learning of our arrival, sent some animals down to meet us. The trail to Ninghsia leads across a strip of waste land five li in extent stretching along the river, and then runs for the rest of the way through irrigated fields, mostly under rice, traversing several large irrigation channels. There is probably more rice (though of an inferior kind) grown on the Yellow River plains between Ninghsia and Chungwei than anywhere else in China north of the Ch'inling Shan; but also this was the only region in Kansu where we were troubled by mosquitoes, the elevation being under 4000 feet. We spent a few days in Ninghsia, being hospitably entertained by the Mahomedan General and other officials. It is a large town, and a political and commercial centre of some importance, but the interior is very dilapidated and poor-looking. It is the centre of trade with the Mongols of the Ordos and the Alashan (the latter really the name of a Mongol state rather than a mountain range), chiefly in wool and sheep and goat skins; a particularly fine lamb-skin, called *t'anyang p'i* is a noted local product, as well as felts and carpets. An old Ninghsia rug is of considerable value anywhere. The local Mahomedan General, Ma Fu-hsiang, who is also a sort of Military Governor of North-Eastern Kansu, is one of the leading Mahomedans of the Province, and represents a fine soldierly type of Chinese Moslem. He served under T'ung Fu-hsiang in Peking in 1900 and commanded the Dowager Empress' escort on the retreat to Hsian. The Manchus had no more loyal servants

2: Teichman G-5 (1919) 1921 AF13 Northwest China AF13

501 house-boats; they are used for the conveyance of the wool down stream, and are as often as not tracked up empty. For the convenience of future travellers on this route, it may be stated that the hire of one of these large boats from Ninghsia to Paot'ou should be about 35 taels, and of a small boat or raft from Lanchou to Ninghsia about 25 taels; but with a limited amount of baggage the journey can be accomplished very much more cheaply by hiring accommo-
502 dation on a lader. wool boat. The rapidity of the journey depends on the amount of wind met with, as with high winds, which are frequent in the Ordos, the clumsy scows are blown ashore or on to sand-banks, and have to tie up till the weather calms. Night travel is possible part of the way round the Ordos. It is a peaceful journey, navigation consisting in keeping the boat more or less in the middle of the current and watching the banks drift by. The boatmen are mostly Mahomedans, and thoroughly up to their job. We were much delayed by wind and other causes and took ten days to get to Paot'ou, the actual floating time being about 100 hours.

133 We finally left Ninghsia, or rather Hung Ch'eng, on September 9th and reached Shihchu Shan in the evening of the following day. The weather, as all the way down the river, was beautiful, cold in the early mornings, but brilliant sun during the middle of the day. Between Ninghsia and Shihchu Shan the river is a broad and placid stream with many shallows and islands. On the right hand is sandy desert, the Ordos, now included in the "Special Territory" of Suiyuan; on the left hand the land is still a part of Kansu province, a strip of waste land along the river, behind which lies the irrigated belt, with cultivation, trees,
[136] and houses, backed by the Alashan mountains. In places the sands were grey with geese. Shihchu Shan, locally
439 known as Shihtsuitzu, is an unwalled township built of
236 mud, which appears to owe its existence to the wool trade. It is a weird and desolate little place, lying on the left bank at a point where the Alashan mountains and a low range in the Ordos converge on the river, which narrows to a few hundred yards in width. All around are desert hills. The community, consisting of the native agents of the foreign wool exporters of Tientsin, is engaged in drying and re-

2: Teichman G-5 (1919) 1921 AF13 Northwest China AF13

devils, and the circumambulation of the monastery by the figure of the coming Buddha seated in a car drawn by an elephant, in this case a mock one. The extent of Asia covered by that curious form of Buddhism known as Tibetan Lamaism is very large, stretching as it does from the northern frontiers of India to the southern borders of Siberia, and from Ladak to the confines of Manchuria.

Kueihua Ch'eng is another busy commercial town serving a hinterland extending to Kashgar, Kobdo, Ili, and Uliassutai. Near by lies the old Manchu garrison fortress of Suiyuan, which gives its name to the new territory of Suiyuan; the latter includes parts of Inner Mongolia and Northern Shansi, and has its counterpart further east in the territory of Chahar, comprising portions of Eastern Inner Mongolia and the Kalgan and Jehol regions of Chihli. These territories are administered on military lines. Kueihua is a good starting-point for a big-game shooting trip into the mountains further north, where remarkably fine sheep, a sort of *Ovis argali*, and wapiti can be secured, as well as the roe-deer and goral common in North China. With the Kalgan railway extension pushing on towards Kueihua, this is some of the best and most accessible big game ground in China nowadays.

We changed our carts at Kueihua Ch'eng and hired new ones to take us through the mountains to railhead at Feng Chen, distant four long marches. The first stage is a march of 90 li to the mountain village of Shihjen Wan, the trail continuing east across the plain for six or seven hours and then running up a shallow valley for the rest of the way. Many of the higher mountain slopes were snow-clad, though the season of the year was only late September. On the following day another long march of 90 li up a valley and over a low pass brought us to the hamlet of Wuli Pa, lying on a sort of plateau of moorland country, the beginning of the grass lands of Eastern Inner Mongolia. It snowed heavily most of the day and we arrived cold, wet, and tired to find the roughest of accommodation in a large cart inn. The third stage is still longer, called 110 li, to the village of T'ienchʻeng Ts'un, but the trail lying partly across grass country one can travel fast. The road descends through flat open valleys to a lake, where good wild-fowl shooting

3:Cable & French M-5 (1926) 1927
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through which the ordinary traveller is glad to pass quickly.

The aspect of the country was very different from that which we had met south of Kanchow. On the Tibetan side the snow-covered Richthofen Range came closer and closer, while the Mongolian hills gradually diminished in size until they became mere sand-dunes, and then drifted off into the flat expanse of the Gobi Desert. The style of the country presented a good deal of variety, and lay in clearly defined sections running from north to south in narrow strips. Shaho, the first town of importance, was on a fertile band, and lay in the midst of orchards, in which the trees were then laden with ripe pears. Leaving these one mile behind us, we entered an area of loose sandhills, where we found it necessary to descend from our carts to lighten the weight for the animals. We plodded through the fine, dry slopes with a delightful sense of illusion that just over the horizon the sea must surely appear. A number of small sand-coloured lizards sunned themselves by the way; and raising their heads at our approach, they then made off at a great pace pursued by the carter, who derived much enjoyment from catching them by the tail. Our part in the sport was to sing and whistle, which immediately brought the little creatures to a standstill, and kept them spellbound for as long as we continued our tunes. About ten miles further on we passed a clearly-defined line of swamp, through which we approached the city of Fuyi. Here the water-wagtails kept pace with the cart, and a beautiful crocus-yellow-breasted variety flitted in and out of the rushes.

Fuyi was the smallest walled city we had seen, but stands surrounded by well-watered and prosperous farmsteads, owned by wealthy families. The hand of a

3:Cable & French M-5 (1926) 1927 AF13 Northwest China AF13
~~Sinkiang AI-1~~

shied in terror at something none of us could see, but which the carter found to be the carcase of a camel. For hours we progressed in this valley[1] of desolation, and about 2 a.m. emerged into a small patch of watered land, where a few families cultivated melons. We do not like these watered lands in the darkness. Deep ditches are dug in all directions to convey the stream of water, sometimes to one part of the land, and sometimes to another. In and out of the dry ditches the cart bumped and stuck, whilst the animals strained at the high banks. Often the ditch was full of water, and this was worse, as through these rivers of uncertain depths the cart must go, and the experience is nerve-racking.

Before long, the barking of fierce dogs (another of the night-terrors) was heard, and our driver stood behind his mules preparing his whip for a possible fight. The farmer, however, was friendly and hospitable. The young men of the household got up, chained the dogs, and gave us the freedom of the threshing-floor for the night, where we slept in our carts. Early in the morning we gathered the people together, and to their great delight held a gospel service with singing accompanied by the harmonium.

When we left, our hostess gave us a basketful of oil-buns—dough rolled into thin cakes and fried in linseed-oil—and we proceeded on our way, still chasing the elusive Hwahaitz. In three minutes we had left the watered land and were once more in Gobi. A group of five magnificent black vultures caught our attention. They were so huge and so statuesque in outline that it was not until our young men had used the field-glasses that they were convinced these were really living creatures and not a group of rocks. The head was quite bald, and the movement in walking resembled the

1 [Between Chikinpu and Hwahaitz--Analyst]

3:Cable & French M-5 (1926) 1927 AF13 Northwest China AF13
~~Sinkiang AF 1~~

waddling of a small bear, but in flight they were superb.

It was not until after sunset that we drew near the first farm of the Hwahaitz oasis. The Suchow enquirer came out to meet us, and we found a room prepared for our use. The *kang* had been covered with a length of white cloth; a kitchen with firewood was at our disposal, and a meal was being prepared. But we were too tired to sit up and eat it, and securing a cup of tea, we lay down and promptly fell asleep.

We were up early, but not before the crowd had begun to assemble in the courtyard. After a breakfast of pancakes made of flour into which oil had been kneaded, and which we dipped into vinegar, we went out to see the place. The gates of the walled enclosure in which we were staying were already decorated with Christian posters, and the students were out choosing a suitable site for the tent.

The name of the place signifies 'The Flowery Lake.' The lake, however, after which it is named, proved to be but a small pond in which naked children disported themselves, and where the beasts of the local farmers were brought to be watered. The oasis is circular, large, and extremely fertile. The roads were bordered with poplar and willow trees, and the fields were sown with wheat, millet and flax. We followed the high bank of an irrigation canal, and passed the entrances of several large, prosperous and beautiful farmhouses. The locality is very hot by day, but exceedingly cold at night; at sunset the air hummed with mosquitoes, which, however, only lived a couple of hours before succumbing to the night chill.

We returned to find the site chosen, and the tent pitched. Larger crowds gathered even than at Chikinpu, and the sales of gospels were most remarkable.

574 good thing, control themselves masterfully, - as long as they did not go to sleep? The fan tai once gave a large, solemn dinner. He was the treasurer of the province of Kansu, the official just below the viceroy who at that time also controlled the foreign office of the
574 province. Before we sat down to dinner I was asked for my "expert"
411 opinion on the latest invention of His Excellency. The provincial treasurer also had charge of the equipment of the army and the arsenal of Lanchow. He had now made a new kind of "three-man-rifle a large muzzle loader which two soldiers had to lay across their shoulders while a third aimed and pulled the trigger. Amazed at such "cleverness" which had already resulted in a few hundred of this model, "Lanchow 1905," being ordered from the government arsenal, I silently espoused His Excellency's cause, and in token of his gratitude for my suggestion that it might be better to use steel instead of Shansi iron at a somewhat exposed place, I was presented with a photograph of the inventor. /154/

000 At the feast itself there was also a Japanese present, who made himself out to be an officer and who was on his way back from Turkistan. He appeared in European dress but his hair which was longish in the middle but shaved on the sides and in front, showed plainly that as a rule he preferred to appear incognito as a Chinese or a Mongol and wear a queue, because the hair that had been left was just long enough so that a queue could be tied to it. He was, as he repeatedly assured us, on a purely scientific journey and had set out only to look for the se bu siang, the "four-not-equal" (1)

• [136]

1. Elaphurus Davidianus, Chinese: se bu siang, was first discovered by Armand David in the imperial game park at Peking. The strange, stag-like animal was named "four-not-equal" by the Chinese because it was said to have the antlers of a stag, the feet of an ox, the tail of a donkey, and the hair of a mule. The species is today regarded as extinct. The game park as such has not existed since 1900.

which in his opinion still exists in the mountains on the Russian border. He said he had not been able to get it only because of the hostile entanglements of his country with Russia!

264 At this dinner we sat in an airy, half-open but very pretty
351 wooden pavilion in the fan tai's large garden in which there were lakes with many bridges and small boats between reed and bamboo

5: Tafel--490 T-3 (1905-1908) 1914 AJ1 Tibet
N.W. China AF 13

which today still belongs to the Koko Nor, and seeks to divert the water. 133

Shortly after twelve o'clock of this first day of the journey we set up camp in the middle of the large longitudinal valley (Plate LX). In other words, we did not get very far. Yaks are, after all, oxen and proceed slowly. If one could let the animals graze at night in East Tibet, it would be possible to extend the day's march; but since this is not possible because it is unsafe, one can only spend half the day in traveling. But during the short afternoon hours of our first day the animals sought in vain to get enough to eat. The herds of the nomads had left only the woody stalks of the dry winter grass which covered the earth like a thin yellow veil. (1) 000

1. This Ara Gol Plain is today inhabited by Tibetans and specifically by the Tschamri tribe. Until 80 years ago it was the land of the first banner of the Tschoros-Mongols with eleven squadrons, along the western part of which, on the lake, bordered the one Khalkha banner.

Our first night on the Tibetan plateau passed very quietly. After it had begun to grow dark the animals were driven into the center of the camp between the tents. We lay down to sleep at five different places around them and a guard carrying a loaded gun began to walk around the camp. Slowly the fires died down and the wind, too, gradually went to sleep. There was not an unfamiliar sound to be heard; nothing but the soft gurgling of the many ruminating cattle and now and then the shrill laughing call of the watchman broke the silence.

On the morning of April 24 the thermometer stood at -80°. We left the broad longitudinal valley and crossed a low branch of the eastern continuation of the South Koko Nor Mountains, that is to say, the ranges that extend south from the Koko Nor in a west-northwest to east-southeast direction for several hundred kilometers (Plate LXI). Although we marched ahead without any path whatever, we got across without any difficulty. Early in the afternoon we encamped on the edge of the next yung, a broad valley, that runs parallel to the one of the day before. On our way we had met many antilopes and round about our tent lived marmots who emerged from their holes out of curiosity and sat up on their hind legs, anxiously whistling when anyone approached. Our new camp had no water but there was still 133 [136] 000

this, they said, and yesterday we were surely as close as we were today. The men sat dejected around the campfire and prayed unceasingly. The death of the crane had to be dragged in again. In order to appease the spirit, Tsch'eng, the shoemaker and cupbearer, who was at the same time the high priest of my Buddhists, reached into the kettle twice and filled the tea ladle, hurling its contents high above our heads as he invoked Amne Bayan. Only after this abundant libation did he pour each one's small portion into the cups that were held out to him. 000

During the night the sky was overcast and thus the thermometer sank only to -1° Celsius. The usual interludes occurred: at eleven o'clock I found Sung and at two o'clock, Tschang sleeping at their posts. The dogs became very restless several times and dashed madly out into the steppe. But we could never find out what was the matter. We decided from now on /302/ always to extinguish the fires at dusk in order not to betray our camp site.

Before sunrise the caravan got under way. It was necessary for us under all circumstances, even if it meant taking along only the most vigorous animals, to reach water. In spite of the cool temperature, all the animals were suffering from thirst and had lost all desire to chew off the dry winter grass; they stood apathetically, hanging their heads sadly, unless we drove them on. When it grew light we saw a long, dark line actually galloping straight toward us. There seemed to be about 50 or 60 horsemen. "Fan tse, robbers!" yelled a voice in desperation. Everyone reached automatically for his weapon and made sure it was loaded. When the troop came nearer it seemed as though we had a riding school in front of us, the members of which were scrupulously trying to keep a certain distance apart. They galloped brilliantly and were making frightfully rapid progress. Meanwhile the first group of my yaks had halted; the second was coming up and the drivers, disquieted, hastened toward each other and threw the packs from the horses in order to be able to mount them. I, too, had now joined the others and saw with the help of my field glasses that they were - as the Chinese say - ye ma, wild horses (Equus hemionus). Shortly thereafter the animals turned sharply to the left and stood still. They now looked at us with as much astonishment and fright as we had at them shortly before. Equus hemionus is a species of large wild ass. However, it does not look much like the usual ass, but can be mistaken for the Chinese mule. The Tibetans call these animals tschiang (usually written kyang). The color of the animal is predominantly 136

136 reddish-brown, its short, upright mane and tail are black. The belly and the legs are a lighter color, often a dirty white and there are dark stripes running across the knees and the hocks. At the withers the stallions are 1.30 to 1.40 meters high; thus, they are as large as the common riding horses of the highlands. Especially when they were going fast, the animals were often to deceive us into thinking they were mounted. Soon after, we also saw tschiang herds coming from the left at a gallop, usually 15 to 20 of them and, in between, many delicately-built Dseren antelopes enlivened the yellow steppe which on the preceding day had been so completely dead.

133 Countless deep, well-worn paths made by the tschiang ran criss-cross over our route. We could not be too far away from water now. The valley continued to descend a little and later we came through a flat valley. In it we found remains of nomad encampments, meter-high wind-breaks made of dried cow dung and more than a dozen cooking places built of stones and loam, so-called takoa (Central Tibet: tab means "hearth") which not more than a month ago must have stood in the center of a black tent and been in use. But we searched in vain for water in the vicinity. The valley floor was completely dry, and not even a dry bed of pebbles was to be seen; nothing indicated that a stream had flowed through here even temporarily. The nomads seem to have camped here in late winter and early spring, at a time, therefore, when they could undoubtedly count on snowfall. But we did not let ourselves be diverted from the direction we had taken and rode straight on toward a small, isolated patch of snow that could be seen on the bordering mountains. /303/ We discovered on this day that the first row of mountains did not rise up very far above the plain filled with stone fragments which was the tala. That is what had deceived us on the evening before. In other words, we were still in the waterless desert.

000 Toward noon I rode on ahead of the caravan; only two female dogs accompanied me. For a long time now, some of the animals had been unable to keep up, and even the rest crawled along uncertainly and at a dragging pace. Half the animals had no packs. We had piled up a large heap of supplies in a particular spot along the way. We simply had to have water otherwise there would be a catastrophe which might ruin all my plans. I estimated we were still 12 kilometers distant from the first patch of snow; this, for the poor, tired bullocks was an almost endless stretch. Suddenly I saw my dogs pounce on a hole, and a few seconds later my good little horse was also greedily drinking. My clever Tschimo, the ugly old bitch with

the broken teeth, which had been "given" me in January at the Koko Nor, had found the water. 000

On this day I lost two yaks that came from the Ts'aner. All the other animals reached the water hole, although some of them not until late that night. The two yak bullocks that were lost had had to be favored for a week already. They had taken turns carrying a skull of a Tibetan which I found between the dunes at the Si ni Ts'o. It was the lightest weight imaginable, but my men swore that it was this skull or rather the gui, the spirit of this dead man, that had exhausted the two animals and finally killed them. It weighed so heavily on their necks that they would have broken down even if they had been the strongest bulls, so my Mohammedans as well as my Buddhists solemnly declared.

In order to refresh my caravan to a certain extent I was forced to put in two more rest days at the water hole. One of those days was lost fetching the packs that had been left behind. I spent this time hunting in order to have some fresh meat. But there were not many living creatures to be found except the tschiang packs. I caught only a few hares and some prairie hens. The tschiang were extremely [136] cautious. They are very inquisitive animals, they always had to know what the mules and ponies were up to, but they never let me as a human being come closer than 400 meters. The flat terrain and the almost complete absence of vegetation made their vigilance easy.

On the afternoon of the second day our water hole dried up and we could not find another far and wide. The snow field, too, on the mountain beyond, which we aimed at from the distance, had now melted. We had obviously been lucky in crossing, and I did not fail to point out my good fortune to these superstitious people in the proper manner, in order to dispel any doubts that might still be left about the crane shot.

At the foot of the southern border range and parallel with it runs 487 a large yak road. This is a natural road running along for hours, straight as a die, and varying in width from six to ten meters, like a sheaf of little paths, /304/ sometimes close together, sometimes farther apart. This is a route used by wild game from time immemorial. Today it is the road of the Schar ba (the people from the east), that is, the merchants from Sung pan ting in Szechwan. Every year these people lead hundreds of bullocks carrying tea and all kinds of goods and trifles along this road in month-long journeys, and trade these things for wool, skins, furs, rhubarb and musk. We discovered this road on our next day's march and followed it in a southeasterly

[text continues on p.513]

increases. But we learn to wake up rapidly only when the barking sounds really serious. Then if wolves were creeping around in the pale moonlight, we quickly turned over and went calmly to sleep again. In the Tibetan steppes only man is a danger to man. 600

At Camp 15[1] too, a small pack of wolves appeared when it had grown dark and the camp had retired for the night. The moonlight was so bright that one could recognize the animals even at 300 meters. This time there were eight of them that circled around us. Dolefully whimpering, they sniffed with their noses in the air. We could see them at their full height against the bare ground. As soon as they looked as though they were coming toward the camp, my dogs dashed out with mad barking and the two opponents then stood looking at one another, baring their teeth. Neither the dogs nor the wolves were great heroes. The dogs showed courage only when they were accompanied by a man, but even then they were loathe to go farther than 100 meters from the camp. The wolves, on their part, tried to approach like thieves; when they caught sight of one of us human beings they dispersed timidly and ran off. I could not get a shot at them. 136

That night the temperature went down to -6°. As usual, the coldest period was just before sunrise. At six in the morning the caravan was packed and ready to go. We quickly crossed the rest of the longitudinal valley and climbed, at first without a trail, following a ravine, up the principal chain of the Semenov Mountains. But on account of the pack animals I was soon obliged to encamp again. Thus, our day's work did not amount to much. We had gone only 10 kilometers, but had climbed 600 meters in doing so. Our camp was 3,880 meters above sea level. There was an abundance of grass and the animals fared much better than at Schara khoto where, even during the winter, the last dry blade had been pulled off, but even here there was nothing but dry, dead grass from the year before. 133

The Semenov Mountains have not been clearly defined. The name was introduced by Obrutschew. He was looking from the South Koko Nor Mountains much farther to the northwest, /307/ at the Dábassu Nor, and saw to the south of him a new parallel range which, since a native name was lacking, he called after the head of the Imperial Russian Geographical Society, Semenov Tianschanski. (1) The

1. Peter Petrowitsch Semenov Tianschanski, born 1827, traveled through Tien Shan in 1857-1858. He died in March 1914 as the Nestor of Asiatic research.

[1] [In a valley emerging from the Semenov Mts. - Analyst]

000 The large highland valley into which we had come is called Sarong by the nomads. On May 16 we set up Camp 21 there and on May 17, Camp Number 22. Both of them were over 4,100 meters high. We made little progress because the trek over the naka fields with their holes exhausted the animals very quickly. As soon as the caravan came into camp, the animals sank exhausted to the ground and only toward evening they tried to eat their fill. Several of the horses throve on the meager diet, others, obviously Chinese horses which had been fed peas for a long time before, became noticeably thinner. On May 16 another of the yak bullocks which we had bought from the Ts'aner was worn out when we had gone only half-way. The men killed it on the spot according to the Mohammedan rites and ate it up within two days. But the meat was not very tasty.

In the Sarong Valley there is an icy, sepulchral stillness, as though we were on the moon and no longer on this earth. My men were very depressed and not one of them hummed a tune to himself.

Sung says he feels better. He still does not want to take any European medicine /314/ and maintains that the exorcism of the instigator of his illness by the nun helped him. He said the bad spirit of his illness has been driven out and all he needs now is to get back his strength. He still runs a temperature, and a considerable enlargement of the heart is indicated. He is beginning to look frighteningly emaciated. The former roly-poly chap has become hollow-eyed and his skin is ashen, in sharp contrast to the bronze complexion of the healthy men. During the last few marches he had to be tied to his horse because he could not keep himself in the saddle at the slow, crawling pace set by the caravan.

136 At Ga fo ying pan there were dozens of marmots playing on the rock terrace all around the camp. Now I never heard their merry "wit! wit!" Here everything was still in its winter sleep. There was no life to be seen anywhere. Only once a pair of yellow ducks flew through the valley, clucking. They were travelers, like us. On May 16 shortly before twilight set in I saw a bear on the farther slope, about one kilometer distant. It was the first one on this journey. He was pushing heavy clods of earth, he turned over stones and with his iron claws dug for mice which were still in hibernation. The Tibetan highland bear also does not scorn the sweet, starchy potentilla roots.

000 On the evening of May 17, I saw four Tibetans on foot at some distance from our tents. With my glasses I could see them pushing their guns in front of them and crawling towards us on their stomachs. By the time it was quite dark they were still opposite us as though

brought along. Then they began tooting up there. One of the men lifted a large sea shell to his lips and wheedled tones out of it which resembled the braying of an ox. At the same time a second and third man called the names of mountain spirits, turning in all directions as he did so, and letting scraps of wool and bits of printed paper (Tibetan: slong rschda, written: rlung rta, see Figure 18) flutter off in the breeze. It was the service which traveling akkas from the little monastery near Dankar were celebrating in honor of the day of the full moon, for it just happened to be the fifteenth of the month according to the Tibetan calendar. They were on a journey to the Wanschdäch' tseidia Tibetans from whom they were supposed to collect gifts for their monastery during the course of the summer. The Wanschdäch' tseidia had been grazing their flocks here during the winter. All the monasteries of Amdo send such emissaries as pastors to the nomads. The Gum bum monastery alone sends out many hundreds annually. The gifts which these monks bring back serve to cover the cost of running the monastery. T 792 782

As we rode on we found down in the valley the luggage of the priests who had worshipped on top of the mountain; it consisted of a small yak caravan carrying food supplies and merchandise for trade. C 133 136

Our 30th camp was 3,900 meters high, but still belonged to the /323/ basin of the Tschürnong Chu. The valley formations had become broad and rounded. One could again speak of valley plains. Along with this widening of the valley, the flora and fauna changed. The ground was covered by only 5 centimeters of top soil, and there were no longer any cuckoos after the last meter-high brush. On the other hand, herds of kyang which had not been visible down in the ravines galloped across the open country, and traces of wild yaks, of Ovis poli and similar large ruminants lay bleaching along the wayside. Around numerous pools there were pompous-looking cranes and waddling ducks and geese.

On June 8 it began snowing at four in the morning and the storm lasted all day so that we did not move from the spot. The clouds hung far down into the valley. The temperature stayed around $\pm 0^{\circ}$. It was an extremely uncomfortable camp. But everyone was in good spirits because we had fresh meat. I had shot my first kyang. C 133

June 9. We decamped very early in the morning with the sky overcast. Around noon we slowly approached a pass. The very last stretch was somewhat more steep and caused us a lot of work. But the difficulties of the pass did not consist of the altitude - I measured 4,370 meters at the top - nor in the angle of elevation, but in the

On June 10 we reached the shore of the Merduch' Ts'o without further difficulty. The lake lay like a mirror before us. Half of it was still frozen. Blocks of bluish ice stood out against the dark green of the water, and around the shore were bizarre-shaped ice boulders that told of violent storms. Ice floes a foot thick had been hurled onto land at a distance of many meters, and there they formed a high wall. This must have been done by the winter storms, the summer storms do not have the power to move such tremendous masses, not even severe thunderstorms, of which we were having two a day as a rule. C 133

I followed the shore all day long. I wanted to survey the entire west shore and travel over it, because here low hills had created varied shore formations, deep bays and peninsulas. We were finally stopped by a tiny brook on the extreme western edge of the lake, where we could not find any footing. There we encamped, close by the lake on a narrow headland which ended in a rocky hill. We had just rounded up the animals and rid them of their packs when a magnificent specimen of a Tibetan stag dashed down the rocky hill and ran straight through the midst of the herd. This was the only time throughout my whole journey that I saw such an animal. C [136]

The Merduch' Ts'o is 4,100 meters high and is about 23 square kilometers in size. To judge from the marks on the shore, its water level varies a great deal. And no wonder! There was no outlet to be seen anywhere. Nevertheless, it has perfectly fresh water, just like the Si ni Ts'o, the Gungga Nor and the Bayan Nor which also have no outflow. The nomads never seek out its shores, because the pastures are no longer good enough. On the other hand, Tibetan hunters often come here. We found quite a number of tado (tabrdo) cooking places consisting of three stones, such as travelers and hunters erect in order to make a tripod for their cooking pots. T [224]

June 11. Today I was pushed off far to the west of the course I hoped to follow. The caravan was obliged to march many hours until it could venture to cross the bottomless morass of the brook. Even so, it took us much more than an hour to go a little more than five meters.

The mountain slopes showed an incline of no more than 5°. But the rocks had dissolved to form a fine, brown, clayey earth that retained all the water. At a 2° and 3° gradient it was too wet for grasses, and finally even for cushions of moss; the naked earth, or rather bare mud covered the entire plain. I finally pitched Camp 33 on a low saddle, the first dry spot I could find. It was 4,315 meters high (Plate LXX). Beside it there was a thicket of mountain willow C 133 137

C 133 137 /325/ almost one meter high. The pussy willows had just begun to show. Blue and yellow iris on short stems peeped out of the ground. We stayed in that camp two days, two gloomy, gray, rainy days. The clouds dispersed only to make room for darker ones that discharged hail, snow and rain - often amid thunder and lightning. Only for brief moments the magnificent panorama was revealed and we saw toward the south the glistening white peak of sacred Amne Machin, and, towering 1,000 meters above thousands of snow-caps, the ice-bound surface of Tossun Nor (Mongolian), the Butter Lake, gleamed far to the west. Then it became so clear that with my Zeiss glasses I could distinctly follow a wild yak herd, about sixty head, at a distance of 11 1/2 kilometers.

T 579 On our next march, Da Tschang told of one of his worst experiences in Tibet. Four years before he was traveling from Hsining fu to K'am with his Tibetan wife and three K'am Tibetans. They had passed Merduch' Ts'o and had come to the town of Sum ndu. We saw this spot, 13 kilometers southwest of our route, where three valleys open up into the large Tossun Nor Plain. The travelers had only a half dozen pack horses besides their riding horses, and so they covered about 50 kilometers a day. In Sum ndu suddenly a bullet whizzed past them. They quickly retired behind a sand dune and slipped into a hole from whence they hoped to defend themselves. Da Tschang's pack horse was carrying his entire fortune, but the defense looked hopeless. They were surrounded by 120 Sakuch' Fan tse who now closed in on them in their retreat.

T 628 If possible, Tibetans avoid killing people. They are held back by fear of tribal revenge, as well as by fear of the spirit of the person killed, which seeks its former possessions. Thus, the rascals were persuaded to parley, in spite of their much greater numbers. Finally, Da Tschang and his friends were permitted to take themselves off on five, skinny old Rosinantes. The robbers kept their horses, their packs and all their good clothes. They were given only enough flour to last until they reached the Horkurma Fan tse who at that time were domiciled three travel-days south on the Hwang Ho. There they were obliged to shepherd flocks for many weeks until a caravan took them along.

C 133 136 My caravan was now in the territory of Lake Tossun Nor, which the Tibetans call Dung re Ts'o ner. Herds of antilope and kyang disported themselves on the edge of the great plain that extended from my camp 2[illegible] kilometers to the Tossun Nor.

unable to keep step with the caravan. On the next two days I saw individual groups of riders through my field glasses. But none of them ventured to come close to us. 133

Our march now continued due north where there was a large white spot on the map on which "mighty mountain massif with perpetual snow" stood out in bold letters. Camp 36 (Plate LXVIII), 37 and 38 nestled at the foot of precipitous limestone mountains on which I collected carbon- (Culm) fossils (Phillipsia and Productus). To the west of us lay a high valley, many kilometers wide, filled with mud. Up on the peak of the limestone mountains, at an altitude of 4, 500 meters, I found brooding, yellow Kasarka geese. It is difficult to imagine a more uncomfortable place for this business of hatching. There was seldom a tiny plant to be seen in a rock crevice. Wherever there was a sheltered spot, a hollow, it was filled with snow. Why do only these birds come out of the mild Chinese lowlands summer after summer to breed and molt in these storm-tossed unfriendly heights? On the plain there are also many small birds living in hollows in the ground. I saw three or four different kinds. During the day they twitter and half sing and even at night I could often hear them peep. They live on seeds and insects. One of the most common birds was the Tibetan lark (Melanocorypha maxima). Besides these we also observed kites, eagles and vultures. All the other birds that we still saw on the Tschörmorg: cuckoos, gray doves, magpies, were left behind. As soon as the sun appears a few butterflies flit over the low grass, but always the same species. (1) There is an abundance of lesser fauna 136

1. Among others, the following were collected here: Papilio machaon-ladskensis Moore; Pap. tamerlanus Oberthür; Armandia thaidina Blanch; Aporia hippia-tibetana Gr.; Mesapia peloria Hew.; Melitaea didymaturanica Stgr.

but not a great variety of species. Spiders seem to be the most frequently-occurring insects, especially Laufspinnen. There are also a few species of flies and above all many wood-lice. Among beetles there are Kuraben 12 millimeters long.

During this time the weather was very changeable. At Camp 36 a cloudless, starry sky spread over us so that it cooled off to minus eight degrees and thick hoar frost, a rarity in '329' in these altitudes, covered the ground. At Camp 37 we once again had to put in a day of rest because we were enveloped in clouds all day and wet snow whirled about us. At noon a shaggy, strange dog appeared at the door 132

[text continues on p. 551]

eternal rainy-day rest stops. The wet snow fell unceasingly against the cloth of the tent, above me. And like a torrent was the sound of the chatter from the nearby tent where on such days of idleness, my men chew the rag endlessly. They gave themselves the shivers by relating tales of brigandage and murder, and then again made each others' mouths water by describing succulent dishes, and grapes and melons that they had eaten in beautiful China.

If only the region were not so desolate! As far as the eye can see there are flat, muddy undulations. Wherever there is a little spot bare of the wet snow, the earth shows only isolated bunches of grass scarcely three to four centimeters long.

June 21. This year June is much wetter than it was two years ago. We are always wading through mud. Toward noon we crossed a small saddle from which we at last saw a few mountain peaks in the north. Individual, shining white peaks rose out of the undulant plain, against the deep-blue horizon like great white sails on the sea's horizon. Is this Prschewalski's "mighty mountain massif with perpetual snow"?

Today was a first-class hunting day. During our march I shot an antelope and a kyang. At 250 meters I shot the stallion of a kyang pack of about 100 heads, through the entrails. Wounded, he trotted on for some kilometers until my dogs trapped him in a lively brook. He was followed by four mares who did not seem disinclined to belabour the dogs with their hooves. They fled with displeased snorts and grunts only after we human beings appeared. The stallion was an old champion, his skin showed countless scars where he had been bitten. Han had not yet killed him according to the Mohammedan rites, when a mighty band crossed the plain in front of us. It consisted of 80 - 100 wild yak. Obviously my shot had alarmed them. Shortly thereafter we pitched the tents and Tsch'eng and I pursued the herd. However, we did not reach them, but instead encountered a carrion-eating female lynx which we downed. Not far from that I saw a bear busily digging for mice. While my man was skinning the lynx I took a shot at the bear. We came back to camp, dead tired from our expedition on foot in the rarefied atmosphere. I had great good luck today: Da Tschang who always shouldered my triple-barrelled gun had - as I learned later - fallen head over heels into a swamp with his horse, and mud had got into the muzzle of the bore. My first shot at the lynx caused the bore to explode at the muzzle and a piece of it whizzed by close to my head. The triple-barrelled gun now looks badly worn. Its butt-end has been tied together with a piece of wire because it has a crack, and the bore is smashed and is shorter by 10 centimeters.

this chain. The Tibetans called them the mountains of Wahong La. 000

brook ran in a longitudinal furrow parallel to the chain. Bulging moraine walls extending down from the peaks narrowed the valley to such an extent that finally we saw only embankments of moraine gravel and no longer any peaks.

The battle between sun and snow squalls continued. But when the cloud veils lifted once again I discovered from my new camp site a few black dots high up on a moraine. It was a herd of wild yaks. I could see them only with my field glasses, but soon an eager hunting party had gathered. I chose the three Mohammedans as companions, admonished the ones who stayed behind to be cautious, and rode up along the moraines for an hour and a half. Numerous kyang again circled about us but no one paid any attention to them. The horses breathed heavily going up the steep slope. We had to pause frequently on their account. Finally, when we had climbed even beyond the last pass, about 4,400 meters up, we once more discovered /332/ the animals we had seen from our camp down below. They were 2 kilometers distant, huddled together in a black mass on a snow-field. Then we tied the horses together and proceeded on foot. In spite of our slow gait our pulses were throbbing. At times we waded in mud and mire, then again we climbed over the round granite boulders of the old moraine which projected out from a huge circus of rocks farther to the east. In the eagerness of the hunt, we often thought we were quite near, but too often we mistook dark granite boulders for wild yak. At last a pitch-black covering of hair appeared between the stones. From here we proceeded on our stomachs. The strain of crawling was intensified by a howling storm from the north, that lashed our faces with sharp kernels of hail and snow, robbed us of our meager breath and brought tears to our eyes. We had now come to within 500 meters. From here on there was no more cover. A bull got our scent long before we were ready to shoot. With lightning speed the heavy mass began to move and with a tremendous dull-rumbling roar the herd - close to 400 head - tore down the slope. Their hooves loosened a Mure, boulders and mud began sliding down the valley. The front part of the herd came to a standstill, whereas the ones in the rear pushed on. The struggling mass offered an easy mark. "Tscho pä i ts'ien mi da!" (sight 1,000) I called to my companions. "Hang!" (shoot). I myself fired three shots with this sight and after each shot one animal remained behind the rolling mass. It was indeed lucky 136 000

000 hard Tsaidam grass, Cobresia Thibetica, began to predominate (Plate LXXII). For the present there were also no traces whatever of former settlements. It was four days before we came upon abandoned pastures and shortly thereafter upon nomad tents. We had chanced to get into the territory of the Moch'tschün tribe, Tibetans who belonged to the large nation of the Wanschdäch'. The Moch'tschün are only thirty families strong and, although they own a large area of land which they settle in scattered, small groups of four to six families, they are nevertheless obliged to change their camp-sites every fortnight because the pasture land is too poor. There was every indication that we had left the area of the summer monsoons and that we were on the edge of arid Central Asia. Rain showers fell less frequently and less abundantly. The bottoms of the small lateral ravines were dry /335/ and showed loess deposits. Only few and insignificant water courses joined the Tsaghan usse.

Among the Moch'tschün we were very much bothered by mosquitoes. But on our subsequent marches they became more and more unbearable. They were the harbingers of Tsaidam. We were now quite close to the large salt swamp of Central Asia, the breeding place of millions upon millions of mosquitoes. During June and July swarms of them, as thick as clouds, travel up to 3,500 meters, that is, 700 meters above the Tsaidam Plain. In the Tsaghan Usse Valley we were so badly treated by the pests that we did not dare descend to the plain itself with our caravan. We turned off toward the west and southwest, keeping to about 3,500 meters. We crossed a number of flat passes. There were herds of sheep and cattle grazing along the road and we saw many tents. We had reached the land of the Réngan Tibetans. (1) These are allegedly only fifty

1. Probably Rockhill's Rerin Tibetans.

tents strong. At first they were unfriendly toward us and demanded a shamelessly high transit toll from us. My big passport from the amban yamen in Hsining fu, which I had always felt was very important - my men, however, did not share this opinion - made no impression on them. They owned that it was authentic, but that it did not concern them because they had never before seen such a letter of safe conduct. All they knew about was the so-called ma piao, the letter ordering them to furnish ula, such as the interpreters from the Hsining yamen carry on their official journeys. But they changed their attitude when they saw the many kwei po (breech

Plate LXXVII. N.W. China AF13

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Mouth of the Wulaxeit. (The bord[illegible] mountains of Tsaidam in the Burun territory are completely bare. There are a few plants only along the edges of the brooks.)

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Woulded kyang on the southern edge of Tsaidam. (In the background the border range of Burkhan Buda, in front of it Piedmont gravel.)

/336B/

N.W. China AF 13
Kalmyk

rented four camels for the crossing. On their high stilt legs they brought the bags of flour dry to the opposite shore, whereas the water ran over the backs of the bullocks. C 133

We camped on the left side of the river at an altitude of 3,170 meters, in other words, not much higher than the large Tsaidam Plain. Because of this, we were almost eaten up by millions of mosquitoes. To the north of us the Yohg'ore Valley soon passed over into the Tsaidam Plain. In the distance we saw the groups of houses comprising Schang rdi kura. On account of the mosquito-pest which was very painful for the animals - we were unable to let the horses graze freely even for a minute because they would immediately attempt to gallop off - I left the Yogh'ore Valley without visiting the houses of the Schang rdi with my caravan. On the following days I traveled over foothills and over several passes of 3,700-4,000 meters into the Barun territory (Plate LXXVIII). I was constantly running into individual Mongol settlements, yurts and flocks. Through some valleys I traveled as fast as I could. I suddenly learned that I had chanced on regions where there was a cattle epidemic. Now, some of my animals had allegedly had the disease, and I had bought them in regions where the pest had just raged very severely; yaks who have survived the disease are called tarma in Tibetan. Nevertheless, I was very much concerned for my herd. C 1360 C 563 232

On July 12 we crossed the Ara Usse gol. Da Tschang and I were far ahead of the caravan and we reached this valley early. I was very hospitably received and entertained there by a Tibetan mamba, by a colleague of the science of medicine. The mamba with his wrinkled spouse, a Mongol woman, lived in a Tibetan black yak-hair tent which, inside, was furnished in Mongolian style. It had a two-winged entrance door and instead of the takoa, the walled and well-burning hearth of the Tibetans which always divides their tents in half, it had, Mongolian fashion, a cooking pot on a round, iron tripod about a foot high in the middle of the tent. In the rear of the tent there were a few chests on which stood a few dozen brass bowls containing holy water. The gentleman had evidently carefully packed away his gods before he invited us to step inside. From the ceiling hung countless small cloth pouches, blackened with soot, in which he kept his medicines, roots and seeds. He pulled down a little bag from the driest corner and showed me its contents. It revealed nitrate of potash which was supposed to come from the Lop region, and which he used to prepare gun powder. We talked about the weather and about cattle epidemics. The Ngolok and K'am T 756 342

the Alang Nor, (Alak Nor), (Plate I). There were lush meadows 133
along the lake shore. Otherwise there were alternate swampy places, spots with grass that grew 10-15 centimeters high, and sections of gravelly rubble. Sand dunes had formed around a small hillock of rock in the middle of the valley, and their thin covering of grass gave off a faint green shimmer. However, not the smallest shrub was to 136
be seen. The steppe seemed dead. But how quickly it came to life not far away with antilopes, kyang, wild yak, wolves, foxes, marmots and bears when I took up my Zeiss field glasses! Several times one of my men came galloping excitedly up to me and pointed to a moving dot in the distance. Fortunately, however, the supposed Tibetan turned out to be a harmless bear or kyang. There were also huge herds of wild yaks on the plains, and they could be seen many kilometers off in their black pelts. They were proof enough that for some time there had been no one in the valley. Incidentally, these wild yaks are by no means altogether harmless. Although I took every precaution in our new camp and always kept two men on guard, nevertheless that afternoon a yak bull suddenly stood in the midst of my grazing cattle. The black giant seemed to be larger than life next to my tame animals, and he glared haughtily and rather surprised at the inferior creatures. I hesitated a moment, undecided whether to reach for my camera or for my rifle. My watchmen had fled when the monster had come racing up grunting and shaking his huge and bushy black tail. However, before I stepped out of my tent with my camera and gun a tragedy had happened. In a blind rage the bull had rammed his pointed horns into one of my animals, through the pillion, and tossed it into the air. The monster trudged off when he heard the shouts of distress coming from my men, and was pursued by the bullets of my watchmen who had recovered their courage. However, one of the best yak oxen lay dead on the ground.

After I lost the greater part of my equipment and with it my Euro- 821
pean tent in the attack on the Koko Nor I had had to make shift with a thin Chinese tent. This always caused great difficulty when I had to change my photographic plates. Even with the thinnest crescent of the moon in the sky it was not dark even under my blanket. On the night of August 5 there was a full moon and therefore no prospect of sufficient darkness throughout the night. I was therefore not a little happy when a bank of clouds in the east brought absolute darkness into the interior of my tent. I quickly decided to change plates, but while I was in the midst of doing this I was interrupted by a strange occurrence. My companions outside suddenly made a most frightful racket. Their

shots and yells sounded as though robbers were outside the camp; 821
they beat on lids and cooking pots like mad, in fact, on anything that makes a noise. The sharp whistling of shots pierced the shouting. At any moment I expected bullets to fly through my tent, as they did that time at Amne Maschin. As quickly as possible I /11/ packed away my plates and dashed out of the tent, cocked a Mauser pistol in each hand. The noise did not cease. Those of my men who were not shooting were swinging their swords which gleamed in the magic light of the camp fire. Threateningly one of them brandished his long lance. H'an and Tsch'eng dash up to me: "The monster, the voracious frog of heaven (1) has appeared in the sky!" ---

1. Called arha by the Tsaidam Mongols; it is the Ra hu of Indian mythology. The monster is also often addressed as wolf.

It was an eclipse of the moon. The cloud bank had disappeared and the full moon stood in a clear sky, but only a fast-disappearing part of its orb was bright, the greater part of it lay in the shadow of the earth. That was why it was so nice and dark in my tent! When the occultation grew less an altar was erected, incense was burned and they all fell on their knees and made a kowtow to the beloved and happily rescued celestial body.

In the southern part of the Alang Nor plain (2) there was a steep 133

2. It is also often pronounced Alak Nor.

ascent. It was necessary for us to reach a plateau that rose up in terrace formations. Many erratic granite and lime blocks a cubic meter in size towered out of the red disintegrated sand masses. They not only enabled me to make deductions concerning the history of the terrace, but also made me fear a renewed, difficult struggle with bottomless moraine mire.

We were still at the bottom of the slope when I inadvertantly came 136
upon a huge herd of wild yak. I counted 1,200 animals. They were outlined against the autumnal green of the meager pasture in the shape of a black, roundish mass. As usual the animals had drawn close together during the night. Huge amounts of droppings that covered a whole hillside and were recognizable at a distance of one kilometer betrayed their resting place for the night. At seven in the morning they were scattered over a wide area grazing, and a space of several

square kilometers looked as though it had been spattered with large black ink-blots. However, because of the almost total absence of /136 grass, I sought in vain to capture with my camera this magnificent picture of primeval ages, showing not man but wild cattle to be masters of the land. When they caught sight of me the nearest young bulls came toward me and threatened me, lowering and shaking their mighty heads as though they wanted to demonstrate: see! we'll lower our horns and then toss you merrily into the air.

The highland at the Alang-Nor is, to be sure, uninhabited, but the yaks are so often disturbed by hunters that many of them recognize the dangers threatening them at the hands of humans. When some of the more experienced animals became aware of me as I crept up, the mass of them drew closer together, appearing blacker all the time. The old lead bull had also got wind of me and set out at a gallop leading the others. Like a huge, woolly, coal-black army worm, he seemed to be wending his way slowly up the slope. Soon, however, only the sound of a peculiar roaring and of falling stones caused by thousands of stamping hoofs came down to me from the distance. I only got the rear of the train on my plate, and with it an old jealous /12/ bull (Plate II). For a long time this old gentleman kept wagging his huge black tail at me in a challenging way. The tail was big enough to have made a handsome parade plume for three Prussian officers of the guard. However, finally even he did not quite trust the situation, and in a waddling trot he followed the herd of his more fortunate competitor, keeping a respectful distance of several hundred meters. The sandy mire caused the heavy animals much delay. Before they reached the height they had fallen into step again. In the melee many of the cows had lost track of their calves, and the latter followed behind in droves. My Tibetan servant Tschaschi killed one with his matchlock; for my utilitarian apostles informed me that killing the calves of wild yak is no sin.

When I myself reached the top of the "Sang-plateau" the yak went slowly off in three groups, each led by an old bull, toward the pastures on the northern foot of the next rocky mountain where we were able to observe them for another whole day.

Following the wild yak I had crossed the water shed between the Hwang Ho and the waters that hurry on toward the Tsaidam basin. /133 This was in the area of shifting masses. A few bare peaks that look like new steps rise up all around this peculiar plateau whose name Dyoba said was "Sang." (1) To the eye these rocky peaks look like

1. Probably meaning Tschang tang, the northern plain of the

great barren steppes of northern Tibet.

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hills, and yet they reach a height of over 5,000 meters. Between the mountains there are undulating plains many kilometers wide. Countless small round pools without visible outlets are found all over. (Plate IV)

Nevertheless, although the terrain looked simple, our march to the south proved very time-consuming. It was impossible to take the heavily-burdened yak directly across the plain. The middle of the plain was a bottomless mire and I could only take detours along the foot of the mountains, and they required many additional hours. If occasionally we had to cross a valley, hours were spent looking for a half-way passable spot and in unpacking and re-loading the animals which had sunk deep into the soft ground. After even a short stretch of this, man and beast lie exhausted on the ground, struggling for breath.

On this wide plateau I saw Orongo-antilopes (2) for the first time. 136

2. Pantholops Hodgsoni Abel. My companions called these animals by the Tibetan name of tso (gtsod) and the Chinese name ling yang. The Mongols call it orongo. I found these animals only on undulating plains 4,000 meters high. The swampy plateaus near the Sing su h'ai are the eastern boundaries of their territory and from there it reaches far to the west over the entire northern part of Tibet. Wherever I found orongo-antilopes in northern Tibet, there were always great numbers of them. Their sharp eastern boundary seems all the more surprising, but this fact is also known to the Tibetans. As true inhabitants of Tschang tang /plateau/, the orongo-antilopes are not very timid; one can easily approach them at 100-150 meters. If the animals feel disturbed they cautiously retire to the middle of the plain. In sharp contrast to the small, very timid dsere-antilopes (gazella picticaudate Hodgson) who in flight /13/ first leap into the air, pulling in all fours and then dash off over cliffs and rocks into the mountains, the movement of the orongo may almost be called clumsy, to which their somewhat heavy body and thick neck contribute. When the orongo travels fast it amounts to a quick trot which, however, is not so easily imitated by any other animal.

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Its rutting time is in November and it drops its young in June and July. I saw the hornless does together with their calves traveling alone until the end of September. (Very conspicuous are the narrow pockets of skin about 10 centimeters deep, in the axillae of the four legs.)

/13/ Soon after I saw the first pack hurrying timidly across the swamps, I discovered skeletons of this animal, particularly skulls with their long, pointed horns somewhat curved inward. There were dozens of them lying about on the steppes. Formerly, after we had set up camp, the afternoon siesta of the men was interrupted only by the hunt for wild onions or dried yak dung, or perhaps by the repair of a saddle or a pair of trousers, but now there was a new industry. The thin horns were easily bent at the fire and manipulated with knives, and so everybody wanted to take along souvenirs in the form of carved whip handles, buttons, gun forks. These primitive people had discovered a raw material which was previously unknown to them and utilized it in their naïve and yet useful way.

Bottomless mountain-sides, neck-breaking naka (high fens), impassable swampy plains, stretches where each step required the exertion of every bit of energy of the whole caravan - all these things caused me to make very little progress, and for two days we were snowed in at camp number 65.

Every few minutes a cloud showered us with hail-like snow and this rounded out the picture of wet wintry weather. With great care a dry spot was picked out for the tents, on the edge of a large naka field. It offered at least some food under the snow for the animals. However, even this small spot was soon under water. There was a squashing and splashing wherever one stepped and wherever one tried to sit down in the tent. Each foot-print turned into a lake, every object felt damp, everything dripped with moisture, and individual drops were soon coming through the roof of the tent. I became annoyed at the poor work I was doing on the damp paper, and stepped outside into the thick, cold fog. I could not even see the tent of my men, not a sound indicated the presence of my caravan which numbered more than 100 heads. Only from a near-by hillside do I hear the sounds of a noise that had been going on for more than 24 hours, and was occasioned by the fight between my dogs and two hungry wolves over a kyang cadaver. Our last fuel supply, dried yak dung, had long been consumed. There was scarcely a single small root that has turned into wood to be found anywhere, to serve as a substitute. My people

fever kept up their morale all night long. Never before had I seen my Chinese working so industriously: one of them held up a light, the other washed, and thus they stood for hours in the icy stream bed. In the morning they could hardly be persuaded to leave. Each of them had washed gold worth - one mark.

The prospect of coming back to that place later and thoroughly exploiting it made them forget their old animosities for the present, which was fortunate for me, and I could continue for the next few days to travel peaceably, even without pronouncing judgment. The experienced gold washers among my companions figured out that with good tools five of them could daily wash five fen of gold apiece, which equals 1.5 tael silver or about 4.5 marks. This they felt was an extremely good yield. It seems that often Tibetans are found along the Sing su h'ai washing gold. We had found abandoned camps and traces of activity in several ravines.

I now continued my journey in a southwesterly direction without a trace of a road, through the low sandstone hills, across many a source of the Hwang Ho. Even the so frequently encountered wardo or tado (tab rdo) which are stones set up in the shape of a tripod and indicated former tea-kettle fellowship, were now no longer seen. The region was inhabited by burrowing rats (1) and therefore abounded in

1. Ochontona melanostomus Büchner; Ochontona nipalensis Blyth; Ochontona hyperboreus Tafeli Hilzheimer.

bears. On the seventeenth I had gone scarcely two kilometers from the previous camp-site when I succeeded in stalking and killing an old she-bear, /19/ just as she had dug out a family of rats and had her snout deep in the hole. An hour later, just as I was enjoying the beautiful sight of thousands of Orongo-antilopes as they cautiously but rapidly trotted toward the middle of a valley steppe which lay a day's journey westward, I met another bear. I let it get within a hundred paces of me. He must have been aware of me for a long time, but he neither took me in nor went out of his way. Not until he started trotting off did I shoot him with my carbine and hit him on the shoulder behind his broad band of white. He rolled about and bit angrily into his own flesh. A second dum-dum bullet hit him and only then did he become aware of me. The critical moment had come. What will the mighty animal do? The stretch lying between us is as smooth as

his previous experience and before I was ready to shoot, his shot had 000
driven away both of them.

I had come to the region about which the Tsaidam Mongols had so often told me, the highland in which there lived people who did not raise cattle or sheep and did not farm, but who dressed in thick furs and nourished themselves on mice and rats. They were supposed to have their homes hard by the Soloma source water (1) and the

1. Mongolian name for the upper Hwang Ho.

Muru Usse (2).

2. Mongolian name for Yangtze Kiang.

The Tibetan bears (Ursus lagomyarius, Ursus pruinosus Blyth) vary 136
a great deal as to color. The white neck-band also differs greatly in width. Sometimes it is only a white spot at the throat, about the size of that of a Malay bear, and sometimes it is a broad white band that runs all around the neck. In fact, often the bear's shoulder is completely white over a 20 centimeter wide area. The color of the body is a light, dirty grayish yellow. The hind legs have different-sized areas of greenish black. In winter, especially, their color is very dark. No wonder the Mongols in Tsaidam tell each other that up in the mountains there are black, white, and yellow bears, and bears as red as cattle.

August 18. Only a short distance from the camp-site I had come 133
to a low saddle between two peaks where only isolated white rocks containing petrified carbon-coral fragments stood out among otherwise rounded mountain formations, when I had a view of the extreme western, true headwaters of the Hwang Ho. They lie in a trough many kilometers wide and are covered with a dense, low growth of hard rushes, interspersed with innumerable drainless pools. From the largest basin that looked like a lake flowed a brook that was one meter deep but so narrow that it could be crossed with one step. This we can probably call the true source of the Hwang Ho (3) (Plate VI).

3. Chinese accounts about the upper course of the Hwang Ho are very scant up to the beginning of the Yüan dynasty. According to De Mailla, Histoire de la Chine, Vol. 9, p. 404, 1779, Kublai Khan sent the Chinese mathematician Tu schi to look for the head waters in the year 1280.

133 According to his account, the water gathers from a hundred different directions in a large swampy plain (called sing su h'ai) and from there enters the two lakes Ala Nor from which flows the Tschi ping ho which farther down is called the Hwang Ho. However, Tu schi is supposed to have come only as far as Kue de! (This accounts for the confusion between the Alang Nor and the Ts'aring and Oring Nor.) In the year 1704 the Emperor Kang hsi demanded a new report on the source of the Hwang Ho. After the Hwang Ho flooded the great plain in the year 1780, Emperor Kien lung finally sent out an expedition in the year 1782 to explore the river thoroughly and to make a sacrifice to the river god at the source. With the help of the Koko Nor-Mongols, Amita, son of Akuli, went from Hsining fu up to the source. He reported that he followed the river Altan Gol upwards from Odontala (Sea of Stars) and thus discovered the golden rock of the north star (Altan gashun tscholo) which is an isolated, golden-yellow rock about 100 feet high in the pool that forms the source. (See further: Mémoires concern. les Chin., Vol. 10, and Plath: Mandschurei, Vol. 2, Timkowski, Vol. 2.) In recognition of the support which the Mongolian standard-bearers lent the Manchurian explorer, most of them were at that time appointed hereditary princes and taidschi.

136 A pair of the yellow Chinese kasarka-geese ruffled the blue surface of the lake, and two others in their thin moulting feathers laboriously /21/ flew off making a clucking noise just as we approached the shore. A lark rose up from the heath which was clad in its autumn colors, and the bird proclaimed in its shrill tones the peace of this world which was untouched by humans. A few wild yaks made a coal-black silhouette against the brilliant yellow-green and the blue of the sky. But peace and happiness were a mere delusion. On the motionless mirror of the lake floated the swollen carcasses of two yaks and along the shore there were many yak skulls and bones, more than two hundred from animals that had only recently been killed. Several days before this we were struck by the number of sick yaks that we came across. They were standing there indifferently, spittle running from their mouths, and mutely noted our passing. Only if we got too close did they wearily turn aside. Here at the lake seemed to be the

cemetery of the diseased animals. As a last resort, in the heat of 136
their fever they hurled themselves into the cooling waters. I had often
been told this by Tibetans.

The reader will realize with what fear and anxiety a yak owner will pass through such a region with his herd. I knew that many of my animals had survived the pest and were therefore immune, but were those that we had exchanged on the way, those from Barun, also sound? And the animals are so stupid! One so often sees them greedily licking a bone lying about! No, there was no peace here, death ruled here! On rocks along the edge sat countless vultures, hardly able to lift themselves a few meters from the ground. This was no place to stop. Horrified, my drivers whistled doubly shrill through their teeth. Their cries of auro! huhuu! today did not permit the oxen to wrap their black tongues artfully around an inviting-looking bunch of grass and enjoy it. Forward, nothing but forward! so that none shall catch his death from an infected blade of grass or drop of water!

From this plain shaped like a basin which toward the extreme east 000
connects with the Sing su h'ai by means of a narrow valley, one needs to climb only a few meters in order to see down below, buried by steep slopes of rubble, a little river that has cut a bed northward to the Schogha Gol. It was here that I had set up camp and had sent Tschang out in the afternoon to reconnoitre for the next day's route. Shortly thereafter he reappeared with two companions, two bän-r - not to deny my readers this lovely Chinese word. He said that yonder in the brook lay the corpse of the bear that had been shot at on the previous day. Three of the men set out with rifles, and carrying their long knives with which they were going to skin the bear. I had barely seen them disappear behind the nearest hill when they reappeared without their weapons but with all indications of terror, running back to camp as fast as their legs could carry them. Way in the lead was Tschang who was still cautious enough to be sitting on his mare which he was beating for all he was worth. They had cheerfully approached the animal that lay motionless in one of the cold brooks on the banks of which a kyang carcass was to be seen. The three bän-r were only a few steps away from the bear and were already arguing loudly over which one of yesterday's bears it was when - a dreadful groan was heard, the animal got up, somewhat drunk with sleep, and still tired, /22/ fortunately. But then suddenly it wheeled around and pounced with angry grunts on my heroes who, in their dismay, dropped all their knives and firearms and ran for all they were worth. The Tibetan bears are usually good-natured animals. This one had probably only

6: Tafel--42 T-3 (1905-1908) 1914 AJ1 Tibet
N.W.China AF13.

Plate VII /24 (C)/

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Sandstone slabs with prayers and prayer formulas in the Serkoh' Chu Valley.

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Young wild yak steer on the banks of the Serkoh' Chu.

000 at the twelfth hour, and rain and hail stung our faces for an hour or more. Toward evening (it was always astonishing how quickly and easily it all happened) the cloud masses broke up. The wind died down, and by the time night fell the enchantingly beautiful starry sky of Tibet appeared, offering an invitation to my men to spend hours telling their legends of the river of heaven (the milky way), of the king's son and his beloved who were permitted to live together only after they had become stars.

136 After I had come down lower and thus reached better grass pasturage, larger herds of kyang began to appear; unusually often there was other wild game: yak (Plate VII), hares, foxes and marmots, so that we did not have to kill a sheep for long periods. On the other hand, there were no orongo-antilopes in the valley. These animals evidently like the extremely high, inhospitable regions where, on wide slightly undulating plateaus there is just enough food for their modest needs. On the other hand, I here added a beautiful example of ovis poli to my collection. This is a gigantic wild sheep which the Chinese call da t'ou wan yang, and the Mongols, argali. It seems to be rather rare in East Tibet, and to occur only in the northern part, in rocky /28/ regions above the timber line. I never saw more than three or four at one time. They are extremely timid, even though they have little to fear from the Tibetan matchlocks. The buck was almost as 000 big as a young wild yak. My men shook their heads doubtfully at this new, crazy idea of their master who was bent on taking along what seemed to them a useless mass of bones and powerful horns. It required infinite patience and cunning to persuade the men to carry out my order, and only the promise of a larger tip finally induced one of them to add it to his burden.

"It must be especially powerful medicine," I heard Tschang saying outside at the campfire, "that the lao ai ye is willing to give so much for it. Why, apart from the tea money it will surely cost him two yaks, because the burden will be too much for them if the gui of the animal ever mounts it."

133 The way down the valley was endlessly long. Over a period of days we looked in vain for a large body of water. The walls of rock and rubble slopes seemed to rise up ever higher and wilder. On the morning of August 28 nothing in the steep, narrow mountain region indicated the proximity of a large stream, when suddenly we came round a bend and heard the sound of the mighty Yangtze Kiang quite close to us. Again part of the task that I had set myself was carried out. We had reached the "Blue River," the Da Kiang, the Kin scha

valley plains, which in the rarefied atmosphere saps the last strength of all living creatures and makes the heart pump as though it would burst when one works one's way through.

Crossing the Tsassora pass (4,550 meters) on January 31 was child's play, although that was the place where in 1904 our caravan was well-nigh destroyed. In the afternoon we had the first snowstorm. During it a pack of yak came within a few paces of our camp. They were the first we saw since I had left the Tschang tang in the fall. Although we had seen no more tents after Tschebts'a, we also did not find indications of the temporary presence of animals in the lower regions. I believe that in East Tibet the wild yak do not go below 4,000 meters, and in places where humans settle at certain times, the animals no longer occur. Its range is only there where man himself passes through like a fugitive animal. (1)

1. The boundary of the wild yak habitat is almost identical with the line which on my survey map separates human habitation from the uninhabitable territory of High Tibet.

Every day beyond Tschabtscha we came across the campsites of the Horkurma Tsung wa. Every day their traces grew fresher. We were coming closer and closer to them. But another large caravan was in front of us. Sometimes it occupied the same campsites as the Horkurma. The second caravan was even larger and stronger. According to the number of cooking places, we estimated that there were about seventy horsemen and far more than half a thousand pack oxen. There was no doubt in our minds that this large caravan consisted of homeward-bound K'am people who annually came over from the Yangtze Valley and - as we had learned - had left Dankar again at Christmas time. On the second of February we came across a small young ox that the caravan had lost and that grazed by itself by the side of the road at a large campsite. It seemed to have recovered completely and was very lively, although it showed signs of having fought a hard battle with wolves. There were deep scars of bites on its heels and blood stuck to one of its horns, and a large bunch of yellowish wolf hair. Without a word the yak was bound by the Mohammedans and slaughtered according to their rites. We were all ravenously hungry for meat; the few hares and hens that I killed were never enough. Even though the meat did not look sick, it had a disastrous effect on us. Three of us had to be lifted up on our horses the next day and tied on; we had a high fever and /105/ /Plates XVII,

T 782 and a few long: Lama ihasdia sum tschiu...! But when we were brewing tea the Läwa guide invoked the Amne Machin, the Schar Dong re and a few other mountain giants, which here, also, still play a more important role than the Buddhas.

C 136 The region around the big bend of the Hwang Ho is surprisingly poor in game. It was only seldom that I saw in the distance on a mountain slope a Dseren antelope with delicate limbs, but never on this entire trip did I see traces of a Kyang (Equus hemionus), and it seemed as though these animals had been extinct for a long time already on the right side of the Yellow River. Bears are said still to be represented by the Ursus Tibetanus. The only things that frequently crossed our path were hares and marmots as well as a few partridges /Wildhühner/ and pheasants. All during the summer C 133 months and the wet season of the year the Hwang Ho and its tributaries have filled every valley so completely with puddles and everywhere accumulated so much water underground that the heights stand out like islands in an endless swamp. However, the individual groups of islands are so thickly populated by nomads and their herds that there is little room left for larger wild game. Up here we find the strange giant yellow river, the Hwang Ho, flowing on the surface of broad plains into which, farther down near Rardscha gomba and, even more, near the Tala, near Hoka and Kabatalen, it has dug a deep channel. In its entire gigantic length the Yellow River is one of the most changeable and strange large rivers of the earth, and appears as one of the youngest as far as its position and character are concerned. My readers all know that it was only around 1852 that the river shifted its mouth from the southern part of the Shantung province to the Bay of Chih li in the north, and again and again the Hwang Ho has in historical /295/ times found another course through the lowland of China, again and again selected a new bed and filled with terror an endless number of people. Between the provinces of Shansi and Shensi the red horizontal clay strata of the late Pliocene Age which can be seen high above its present bed (see Vol. I, p. 127), show that even in a late geological period it did not flow through there at all, and that thus the entire section of the Yellow River between Ordos and the Wei Ho Valley, the entire Ordos loop, must have been formed so to speak under the eyes of man. The section of the river between its entrance into the kingdom of the 18 provinces near Kue de - Hsün hoa ting and its confluence with the Hsining rivers, is also youthful and full of storm and stress. There the Hwang Ho river-bed is still narrow, the